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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,922	02/03/2004	Naoto Matsunami		9788

7590 07/15/2004

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EXAMINER

ELMORE, STEPHEN C

ART UNIT

PAPER NUMBER

2186

DATE MAILED: 07/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/769,922	MATSUNAMI ET AL.
	Examiner	Art Unit
	Stephen Elmore	2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 April 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 21-64 is/are pending in the application.
 4a) Of the above claim(s) 37-64 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 21-36 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on February 3, 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. 09/468,327.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>02/03/2004</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____ .

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DETAILED ACTION

1. Claims 1-20 were canceled and claims 21-64 were added by the preliminary amendment filed February 3, 2004.
2. Claims 21-64 are presented for examination.

Election/Restrictions

3. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - Group I. Claims 21-36, because they are drawn to a disk storage system for storing data, are classified in,
Class 711: Electrical Computers and Digital Processing Systems:
Memory,
Subclass 114: Accessing and Control of Arrayed elements (such as RAIDs).
 - Group II. Claims 37-64, because they are drawn to an apparatus and method for displaying information of connected elements of a computer system, are classified in,
Class 345: Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems,
Subclass 736: Interactive Managing of a Network of Devices.
4. These inventions are distinct, each from the other because of the following reasons:
Inventions Group I and Group II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention Group II has separate utility such as

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the display of the connections of elements of a computer system, which display invention does not specifically require the disk storage system invention to have separate utility. See MPEP § 806.05(d).

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Applicant's attorney, John Mattingly, Reg. No. 30,293 on June 30, 2004 a provisional election was made, without traverse, to prosecute the invention of Group I, claims 21-36. Affirmation of this election must be made by applicant in replying to this Office action. Claims 37-64 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Claims 21-36 remain for examination.

8. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Specification

9. The disclosure is objected to because of the following informalities:

- a. the current status of related patent applications:
 - i. 10/095,581
 - ii. 10/095,578

disclosed in the first sentence of the specification, should be updated to reflect that these applications are now issued US Patents;

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- b. in the following locations of the specification, pertaining to the language,
 - 1) page 5, line 21, "sets the structural information";
 - 2) page 21, line 24, "sets the structural information";
 - 3) page 35, line 12, "sets structural information";
 - 4) page 36, line 23, "sets related information";

the use of the term "sets" is objected-to as using non-idiomatic English, that is, it is unclear specifically what action or actions are being performed as represented by the use of the term "sets".

Appropriate correction is required.

Claim Objections

- 10. Claims 22-36 are objected to because of the following informalities:
 - a. claim 22, in the limitation "A system according to claim 21," the language "A system" lacks proper antecedent basis;
 - b. in claims 23-36, the limitation "A system" lacks proper antecedent basis;
 - c. claim 23, the limitation "the number of disks" lacks proper antecedent basis;
 - d. claim 23, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;
 - e. claim 23, "is information about...and capacity of a disk" is non-idiomatic English;
 - f. claim 23, is the limitation "a disk" the same disk as the "one disk" already cited in claim 21?;
 - g. claim 24, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;

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- h. claim 25, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;
- i. claim 26, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;
- j. claim 26, the limitation "sets RAID level" is non-idiomatic English;
- k. claim 27, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;
- l. claim 28, the limitation "information of logical unit" is non-idiomatic English;
- m. claim 29, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;
- n. claim 29, is the limitation "one disk" the same disk or a different disk than the disk previously cited?;
- o. claim 29, is the limitation "a logical unit" a new, different, logical unit from the logical unit previously cited?;
- p. claim 30, is the limitation "a logical unit" a new, different, logical unit from the logical unit previously cited?;
- q. claim 30, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;
- r. claim 31, the limitation "information of logical unit" is non-idiomatic English;
- s. claim 31, the limitation "identifying port" is non-idiomatic English;
- t. claim 31, the limitation "a second node" lacks proper antecedent basis;
- u. claim 31, is the limitation "a logical unit" a new, different, logical unit from the logical unit previously cited?;

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- v. claim 31, is the limitation "a storage system" a new, different, storage system from the storage system previously cited?;
- w. claim 32, the limitation "information of combined" is non-idiomatic English;
- x. claim 33, is the limitation "a combined logical unit" a new, different, combined logical unit from the combined logical unit previously cited?;
- y. claim 34, is the limitation "a combined logical unit" a new, different, combined logical unit from the combined logical unit previously cited?;
- z. claim 34, is the limitation "plural logical units" new, different, plural logical units from the plural logical units previous cited?;
- aa. claim 34, is the limitation "plural storage systems" new, different, plural storage systems from the plural storage systems previous cited?;
- ab. claim 35, the limitation "information of combined" is non-idiomatic English;
- ac. claim 35, is the limitation "a combined logical unit" a new, different, combined logical unit from the combined logical unit previously cited?;
- ad. claim 35, is the limitation "plural logical units" new, different, "plural logical units" from the plural logical units previous cited?;
- ae. claim 36, the limitation "information of logical unit" is non-idiomatic English.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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12. Claims 21-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are indefinite because they contain the following non-idiomatic English language, that is, the following usage of the terms "set" and "sets" makes the scope of meaning of the related limitation unclear:

- a. claim 21, "configuration information...is set to...";
- b. claim 22, "management unit...sets the configuration information";
- c. claim 26, "management unit sets RAID level";
- d. claim 27, "management unit sets logical connection information";
- e. claim 28, "management unit sets configuration information";
- f. claim 32, "management unit sets configuration information";

since these limitations do not explicitly state or explain what actually happens when the "set" occurs, it is not clear how many activities or what activities are actually performed, and the scope of meaning cannot be determined;

g. claims 23-25, 29-31, and 33-36 inherits the deficiencies of the previous claim in the claim dependency chain.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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14. Claims 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumani et al., US Patent 5,619,690 and Microsoft Computer Dictionary, Forth Edition, p. 312, 1999, which contains a definition of the term "node," that is being relied upon as extrinsic evidence in support of Matsumani to explain the interpretation given to the very broad meaning of the term "node."

Matsumani teaches the claimed system storing data (claim 1) as claimed, comprising:

a. a switch comprising a first node coupled to a computer and plural second nodes each of which is coupled to a storage system, this is taught, see Fig. 18, as the element disk unit group switch 35 showing a first "node" coupled to a computer, giving the term "node" the first meaning from the cited dictionary, i.e.,

node defn. 1. - "a junction of some type";

where switch 35 explicitly shows a node as a circle symbol, which symbol indicates a first node of switch 35 being a junction where switch 35 couples to host computer 1 (that is, directly coupled through interface controller 22 and command management means 23),

and where this limitation is further taught by elements of Fig. 18, showing switch 35 also comprises plural second nodes each of which is coupled to a storage system, which is depicted by three (plural) "node" symbols (circle symbols) each of which coupled to a storage system, at the junction or "node", where a storage system is formed of the paired set of disk controller and disk group units (1), (2), and (3),

and where, the above limitation has been interpreted as broadly as is permitted by giving each term of the limitation, including the term "node," the broadest interpretation possible while being consistent with accepted meanings for the terms as defined or explained by technical dictionary meaning or definition;

- b. plural storage systems coupled to said switch, each of said plural storage systems comprises a controller and at least one disk coupled to the controller is taught by Fig 18, see e.g., disk controller (1) and disk unit group (1);
- c. a management unit coupled to said switch and each of said plural storage systems is taught by the command management means 23 element of Fig. 18 since the coupling limitation is met to the broad extent it is claimed;
- d. wherein configuration information of the system is set to said switch and said plural storage system from said management unit is taught, giving this limitation the best interpretation possible in view of the 112, second paragraph problem mentioned above, by the structure and functionality of the use of the file and disk management tables, 27 and 25b1-3, see col. 15, line 38 - col. 20, line 49, where configuration information used by the command management means 23 and disk unit selector 34, are used to access the disk units through operation of the switch for the purpose of optimizing the reading and writing of files to data storage units 1, 2 or 3, by use of configuration parameters, stripe size, number of disks, etc., see col. 15, lines 38-41, col. 17, lines 27-38, which includes rewriting previously (initially) stored files, or relocating certain files from one storage unit to another by using or configuring the switch, according to the configuration information to optimize file access after file access characteristics have been observed for files stored at an existing location;

As to claim 22,

- e. wherein said management unit receives structural information for said plural storage system and said switch, and sets the configuration information to said plural storage systems and said switch based on the received structural information is taught as use of the

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configuration parameters to relocate files through the switch for optimizing file access by using another storage location than the initial storage location for a file;

As to claim 23,

f. wherein the structural information, which said management unit receives, is information about the number of disks of a storage system and capacity of a disk is taught as configuration parameters, stripe size, and number of disks, etc., see col. 15, lines 38-41, col. 17, lines 27-38.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumani et al., US Patent 5,619,690 and Microsoft Computer Dictionary, Forth Edition, p. 312, 1999, as applied to claim 21 above, and further in view of Suruguchi et al., US Patent 6,098,119.

Matsumani and Microsoft Computer Dictionary teach the claimed system storing data as noted above, however, does not teach the limitation, wherein said management unit sets RAID level to a storage system, but, Suruguchi teaches this feature as a system that automatically

scans for and configures previously non-configured disk drives in a drive group in accordance with a particular RAID level based on the needed RAID level, see Abstract and Summary, and see Fig. 3, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsumani and Microsoft Computer Dictionary to incorporate the automatic RAID setting level feature of Surugucchi because as suggested by Surugucchi, see col. 2, lines 38-67, the modification permits replacement of dead or failed drives with new unconfigured drives requiring configuration to a RAID level as claimed, and it would have been obvious to improve the performance of the system of Matsumani and Microsoft Computer Dictionary to overcome the loss of storage functionality whenever a drive in a drive group would fail or become dead and would thus represent reduced storage capacity and to replace the dead drive with a new (unconfigured) drive which would require RAID level configuration to return the storage system to the previous storage capacity, therefore, the combination Matsumani and Microsoft Computer Dictionary in view of Surugucchi teaches the claimed limitation of claim 26.

Allowable Subject Matter

17. Claims 24, 25, and 27-36, which are rejected above under 35 USC 112, second paragraph, and are thus not allowable, appear to contain allowable subject matter in view of the prior art of record.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Elmore whose telephone number is (703) 308-6256. The examiner can normally be reached on Mon-Fri from 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen Elmore
Patent Examiner
Art Unit 2186

July 9, 2004